

ABSTRACT

[0137] Large machines, especially those having working envelopes in excess of fifteen feet, exhibit unacceptable errors because of thermal expansion and mechanical misalignments between the axes. The errors have traditionally been minimized by enclosing the machine in a thermal enclosure, by careful calibration, or by mounting a laser interferometer on each axis. These solutions are costly, may require frequent recalibration, and do not correct for small rotations of one axis relative to another axis due to wear etc. The present invention uses an interferometric laser tracker or a comparable 3D position sensor to measure the position of a retroreflector attached to the end effector, e.g. a machine head when the machine comes to rest. A computer compares the measured position to the desired position according to the machine media, and adds the appropriate correction with trickle feed media statements to move the machine to the correct position prior to further machining.